

What is claimed is:

1. A vacuum fluorescent display comprising:
 - 2 a cathode electrode for emitting electrons;
 - 3 a grid electrode for extracting the electrons
 - 4 from said cathode electrode;
 - 5 an anode electrode for accelerating the
 - 6 electrons extracted from said cathode electrode;
 - 7 at least one envelope which accommodates said
 - 8 cathode electrode, said grid electrode, and said anode
 - 9 electrode in a vacuum space and has a display portion
 - 10 having light transmission properties;
 - 11 a phosphor layer formed on an inner surface of
 - 12 the display portion of said envelope and adapted to emit
 - 13 light upon bombardment of the electrons accelerated by
 - 14 said anode electrode; and
 - 15 a cap made of an X-ray shielding material and
 - 16 supported outside said envelope so as to surround the
 - 17 display portion of said envelope through a gap, said cap
 - 18 having a light exit surface from which the light emitted
 - 19 from said phosphor layer emerges through the display
 - 20 portion of said envelope.
2. A display according to claim 1, wherein said
- 2 cap is made of lead glass having light transmission
- 3 properties.

3. A display according to claim 1, further
2 comprising a cooling liquid sealed in the gap.

4. A display according to claim 1, wherein said
2 cathode electrode contains carbon nanotubes.

5. A display according to claim 1, wherein said
2 cap comprises

3 a cylindrical portion made of an X-ray
4 shielding material containing lead glass having light
5 transmission properties, and
6 a front surface glass member made of
7 translucent lead glass having light transmission
8 properties and fitted in one opening of said cylindrical
9 portion corresponding to the display portion of said
10 envelope.

6. A display according to claim 1, wherein said
2 cap surrounds said envelope entirely.

7. A display according to claim 6, wherein
2 said envelope has a stem in which a plurality
3 of lead pins to be connected to said electrodes are
4 buried and which has an outer diameter slightly larger
5 than that of said envelope, and
6 a portion between a tip of an opening of said
7 cap and said envelope is sealed by the stem to form the

8 gap.

8. A display according to claim 7, wherein said
2 stem is made of an insulating elastic material.

9. A display according to claim 7, further comprising

3 a cooling liquid sealed in the gap, and
4 a liquid reservoir formed in the stem to
5 communicate with the gap.

10. A display according to claim 1, wherein
2 said envelope comprises a plurality of
3 envelopes corresponding to a plurality of colors, and
4 said cap surrounds display portions of the
5 plurality of envelopes all together.